AMENDMENT

This listing of claims will serve to replace all prior versions and listings of claims in the present application:

1. (Currently amended): A process for the removal of contaminants from a surface of a substrate requiring precision cleaning, comprising: (a) applying at least one fluid to the substrate surface, the fluid selected from the group consisting of a ~~high vapor pressure~~ liquid having a vapor pressure greater than 5 KPa at 25°C, a reactive gas of the type which reacts with the contaminants, and vapor of a reactive liquid of the type which reacts with the contaminants; and (b) ~~cryogenically~~ cleaning the substrate surface ~~of the substrate~~ with a cryogenic stream.

2. (Previously amended): The process of claim 1 wherein (a) and (b) are carried out simultaneously.

3. (Previously amended): The process of claim 1 wherein (a) and (b) are carried out sequentially.

4. (Currently amended): The process of claim 1 wherein the at least one fluid is ~~a high vapor pressure~~ the liquid selected from the group consisting of ethanol, acetone, ethanol-acetone mixtures, isopropyl alcohol, methanol, methyl formate, methyl iodide, ethyl bromide, acetonitrile, ethyl chloride, pyrrolidine, tetrahydrofuran and mixtures thereof.

5. (Currently amended): The process of claim 1 wherein the at least one fluid is ~~a~~ the vapor ~~of a reactive liquid~~ selected from the group of liquids consisting of ethanol, acetone, ethanol-acetone mixtures, isopropyl alcohol, methanol, methyl formate, methyl iodide, ethyl bromide, and mixtures thereof.

6. (Currently amended): The process of claim 1 wherein the at least one fluid is ~~a~~ the reactive gas selected from the group consisting of ozone, water vapor, hydrogen, nitrogen, nitrogen oxides, nitrogen ~~triflouride~~trifluoride, helium, argon, neon, sulfur trioxide, oxygen, fluorine, fluorocarbon gases and mixtures thereof.

7. (Currently amended): The process of claim 1 wherein the at least one fluid is a the reactive gas or the vapor selected from the group consisting of isopropyl alcohol, ethanol-acetone mixtures, methanol, ozone, water vapor, nitrogen ~~triflouride~~trifluoride, sulfur trioxide, oxygen, fluorine and fluorocarbon gases, and mixtures thereof.

8. (Currently amended): The process of claim 1 wherein the at least one fluid remains in contact with the surface for up to 10 minutes prior to the ~~cryogenic~~ cleaning.

9. (Currently amended): The process of claim 8 wherein the at least one fluid remains in contact with the surface for less than 2 minutes prior to the ~~cryogenic~~ cleaning.

10. (Original): The process of claim 1 wherein the contaminants are less than 0.76 um in size.

11. Canceled.

12. (Currently amended): The process of claim 1 wherein the ~~high vapor pressure~~ liquid has a ~~vapor pressure greater than about 5 kPa at 25°C, and a~~ freezing point below about -50°C.

13. (Currently amended): The process of claim 1 wherein the ~~high vapor pressure~~ liquid has a dipole moment of greater than about 1.5 D.

14. (Currently amended): The process of claim 1 wherein the ~~high vapor pressure~~ liquid remains on the surface in a layer of at least 5 ~~A~~ Å (angstroms) for less than 10 minutes and preferably less than 2 minutes prior to the ~~cryogenic~~ cleaning with the cryogenic stream.

15. (Currently amended): The process of claim 4 further comprising the ~~high vapor pressure~~ liquid removing bulk water from the substrate surface.

16. (Currently amended): The process of claim 1 wherein the substrate surface is selected from a semiconductor, metal ~~or~~ and dielectric film.

17. (Currently amended): The process of claim 1 wherein the at least one fluid is ~~a~~ selected from the reactive gas ~~or~~ and the vapor which reacts with the contaminants on the substrate surface to form a volatile gaseous byproduct; and further comprising: maintaining the reactive gas or the vapor in contact with the substrate surface for up to 20 minutes, and removing the gaseous byproduct prior to the ~~cryogenic~~ cleaning.

18. (Currently amended): The process of claim 17 wherein the reactive gas or vapor is introduced in a chamber containing the substrate~~, under low~~ at pressure below atmosphere pressure and/~~or~~ at temperatures of up to 200°C.

19. (Currently amended): The process of claim 18 wherein removing the byproduct comprises purging the chamber with a gas selected from nitrogen ~~or~~ and clean dry air.

20. (Currently amended): The process of claim 17 wherein the ~~reactive gas or vapor~~ at least one fluid is applied to the substrate surface in the presence of a free radical initiator selected from ultraviolet light, x-ray, laser, corona discharge and plasma to generate reactive chemical ~~byproducts from the~~

~~reactive gas or vapour and~~ species to increase reactivity with the contaminants.

21. Canceled.